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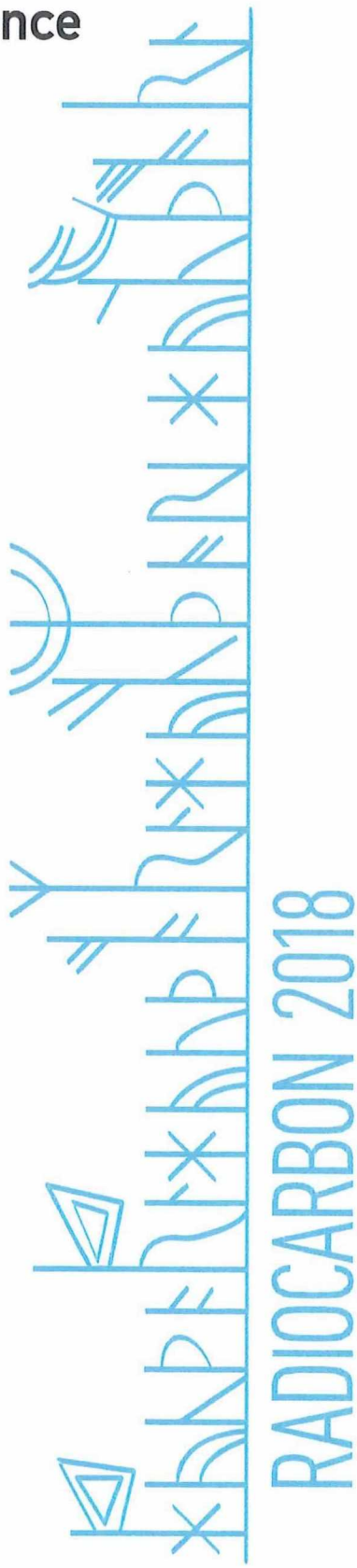
Book of Abstracts



Tuesday 19-Jun-18 - 10:30 - 12:30 - Sansiro 2

Is AAA-pretreatment sufficient to obtain reliable ^{14}C dates on food residues?

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Direct radiocarbon dating of charred food residue has become popular in archaeology due to its direct association with pottery use. Hence, it is generally expected that charred food residue yields reliable ^{14}C dates. It was noticed that some charred food residue dates from Mesolithic sites are older than the dates obtained on terrestrial organic material and their archaeological context, suggesting that a reservoir effect caused by the processing of fish might be the cause.

Food residues were included in a dating program for the early Neolithic of southern Britain, combining new and existing ^{14}C dates and applying a series of Bayesian chronological models (Bayliss et al. 2011). Around 15 % of the food residue dates were judged to be inaccurate on archaeological grounds and there were some large offsets between replicate pairs of food residue dates from the same sherd. Molecular and isotopic analysis of residues from early Neolithic sites in southern Britain (e.g. Copley et al. 2005) have provided no evidence of the processing of aquatic resources in pottery vessels, so the issues highlighted in this study are likely to be the result of different sample pretreat¬ment protocols as the ^{14}C analyses were conducted in different laboratories. Prior to dating, food residues are most commonly subjected to acid-alkali-acid (AAA) pretreatment to remove carbonates and humic and fulvic acids. The impact of sample pretreatment on the composition of food residues has not been investigated in detail. This study compares ^{14}C dates obtained with different pre-treatment methods on food residues and ^{14}C dates performed on reference material (e.g. bone, charcoal etc.) from the same archaeological context.

Bayliss A, van der Plicht J, Bronk Ramsey C, McCormac G, Healy F, Whittle A. 2011. Towards generational time-scales: the quantitative interpretation of archaeological chronologies. In: Whittle A, Healy F, Bayliss A, editors. Gathering Time: Dating the Early Neolithic Enclosures of Southern Britain and Ireland. Oxford: Oxbow Books. p 17–59.

Copley MS, Berstan R, Mukherjee AJ, Dudd SN, Straker V, Payne S, Evershed RP. 2005. Dairying in antiquity. III. Evidence from absorbed lipid residues dating to the British Neolithic. Journal of Archaeological Science 32(4):523–46.